Hot Low-Btu Gas Purification with Coal Ash, O. J. Hahn and M. R. Heilig, Institute for Mining and Minerals Research, University of Kentucky, Lexington, KY 40506.

An experimental study was carried out to evaluate the removal of H_2S and other sulfur compounds from hot low Btu producer gas using gasifier ash. The present work emphasized thermogravimetric studies of the basic absorption and regeneration of ash as a function of temperature, particle gas size composition and residence time. The gas composition studied include (H_2S, N_2), (H_2S, H_2, N_2), (H_2S, H_2, CO, N_2), (H_2S, CH_4, H_2, CO, N_2), (H_2S, CH_4, H_2, CO, CO_2, N_2) and (H_2S, COS, H_2, CO, N_2). The temperature range varied from 800 to 1600°F. The absorption of H_2S in the iron oxide matrix is preceded by the reduction of the iron to the elemental form.

In the case of (H_2S, N_2) gas the absorption was restricted by the formation rate of H_2.